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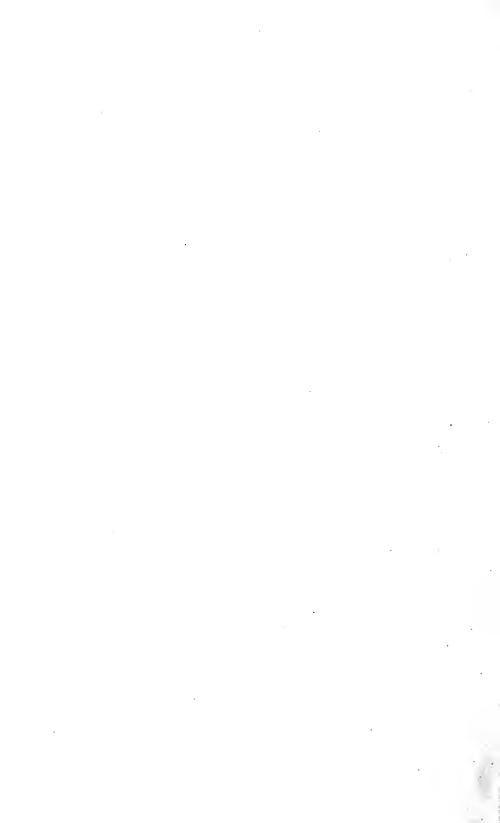
EXPLANATORY NOTES.

The Index covers the contents of Volumes I to XII, inclusive, of the Proceedings completely, exclusive only of routine business. Volume I contains the twenty-eight Bulletins issued at irregular intervals from 1898 to 1902. From 1902 to date (1913) the Proceedings have been published in the form of annual volumes. The contents of the individual volumes appear in the Table of Contents of Proceedings which follows the Index.

Titles of papers are distinguished by quotation marks. Committee reports and specifications are indexed under appropriate subjects in their titles.

The list of key words in the Subject Index is given separately at the beginning of the volume. This list, it is believed, will prove a convenience in determining the key word or key words under which the subject sought is likely to appear, before turning to the Subject Index itself. The key words are not restricted to the words in the titles, but the aim has been to further facilitate search for information on important subjects by directing attention, through the key words, to pertinent matter in the body of the text.

In the Author Index, references to committee reports appear under the names of the chairmen, vice-chairmen, and secretaries of the committees concerned.



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Bituminous Materials for Waterproofing Concrete (Reports of the Committee on Waterproofing Materials). VI, 141 (1906); VII, 193 (1907); VIII, 221 (1908); IX, 292 (1909); X, 162 (1910); XI, 253 (1911).

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General Discussion on Bituminous Materials. IX, 605 (1909).

"Necessary Reforms in Specifications for Petroleum Products." Albert Sommer. (With Discussion.) X, 458 (1910).

"Relation between Some Physical Properties of Bitumens and Oils." Allan W. Dow. (With Discussion.) VI, 497 (1906).

Standard Definitions of Terms Applicable to Materials Relating to Roads and Pavements. XII, 362 (1912).

"The Effect of Free Carbon in Tars, from the Standpoint of Road Treatment." Prévost Hubbard. (With Discussion.) IX, 549 (1909).

"The Proximate Composition and Physical Structure of Trinidad Asphalt, with Special Reference to the Behavior of Mixtures of Bitumen and Fine Mineral Matter." Clifford Richardson. (With Discussion.) VI, 509 (1906).

Waterproofing concrete by applying bituminous materials. XI, 253 (1911).

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"A Further Development of the Penetrometer as Used in the Determination of the Consistency of Semi-solid Bitumens." C. N. Forrest. IX, 600 (1909). Discussion, 605.

"A Machine for Testing the Ductility of Bituminous Paving Cements." Francis P. Smith. IX, 594 (1909). Discussion, 605.

"A New Consistometer for use in Testing Bituminous Road Materials."
W. W. Crosby. (With Discussion.) XI, 685 (1911).

"A New Machine for Testing Pitch." Thorsten Y. Olsen. (With Discussion.) X, 592 (1910).

"A New Method and Apparatus for the Determination of the Specific Gravity of Semi-solid Substances." Albert Sommer. (With Dission.) IX, 602 (1909).

An Instrument for Ascertaining the Hardness of Bituminous Materials. Herbert Abraham. IX, 568 (1909).

An Instrument for Ascertaining the Melting Point of Bituminous Materials. Herbert Abraham. IX, 575 (1909).

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"Apparatus for Determining the Drop Point and Softening Point of Compounds." Henry W. Fisher. XI, 699 (1911).

"Bituminous Materials for Use in and on Road Surfaces and Means of Determining their Character." Clifford Richardson. IX, 580 (1909). Discussion, 605.

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Distillation of bituminous road materials. XI, 234 (1911).

"Impact Tests of Asphalt Paving Mixtures." Clifford Richardson and C. N. Forrest. V, 381 (1905).

"Improved Instruments for the Physical Testing of Bituminous Materials." Herbert Abraham.

IX, 568 (1909). Discussion, 605.

(With Discussion.) X, 444 (1910).

XI, 673 (1911). Discussion, 693.

"Methods for the Examination of Bituminous Materials for Road Construction." Clifford Richardson and C. N. Forrest. IX, 588 (1909). Discussion, 605.

BITUMINOUS MATERIALS, TESTING OF (Continued).

"Organic Residues from Soluble Bitumen Determinations: Sulphur in Tar Residues." Prévost Hubbard and C. S. Reeve. XI, 666 (1911).

Provisional Method for the Determination of:

Soluble Bitumen. XI, 245 (1911).

The Loss on Heating of Oil and Asphaltic Compounds. Proposed. X, 153 (1910).

Adopted in amended form. XI, 248 (1911).

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Proposed. X, 153 (1910). Adopted in amended form. XI, 247 (1911).

Provisional Method of Sizing and Separating the Aggregate in Asphalt Paving Mixtures. XI, 249 (1911).

Reports of the Committee on Standard Tests for Road Materials:

Presenting an abrasion test for road materials. IV, 193 (1904).

Recommending for adoption specifications for toughness test for macadam rock and method of analysis of bituminous paving materials. (With Discussion.) V, 102 (1905).

Announcing details of the proposed standard method for the determination of the bitumen in asphalt paving mixtures, refined asphalt, and asphalt cement. VI, 82 (1906).

Recommending the adoption of the abrasion test for road material, and the toughness test for macadam rock. VIII, 196 (1908).

Recommending for adoption tests for bituminous compounds for roads and pavements, including method of sizing and separating the aggregate in asphalt paving mixtures. IX, 219 (1909).

Recommending for adoption tentative method of distillation for bituminous materials, and proposed standard methods for the determination of the penetration of bitumen and for the determination of the loss on heating of oil and asphaltic compounds. (With Discussion.) X, 149 (1910).

Recommending for adoption provisional method: for the determination of soluble bitumen; for the determination of the penetration of bitumen; for the determination of the loss on heating of oil and asphaltic compounds; and of sizing and separating the aggregate in asphalt paving mixtures. Results of distillation tests, and tentative method for the distillation of bituminous materials. XI, 232 (1911).

Recommending for adoption definitions of terms used in road and paving work. XII, 74 (1912). Dissenting minority report, 75.

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Standard Method of Analysis of Bituminous Paving Materials. Proposed. (With Discussion.) V, 103 (1905).

Tentative Method for the Distillation of Bituminous Materials Suitable for Road Treatment. Proposed. X, 150 (1910); XI, 241 (1911).

Tests for Bituminous Compounds for Roads and Pavements, Including Method of Sizing and Separating the Aggregate in Asphalt Paving Mixtures. Proposed. IX, 220 (1909).

"The Determination of Soluble Bitumen." Prévost Hubbard and C. S. Reeve. (With Discussion.) X, 420 (1910).

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BITUMINOUS MATERIALS, TESTING OF (Continued).

"The Development of the Penetrometer as Used in the Determination of the Consistency of Semi-solid Bitumens." Clifford Richardson and C. N. Forrest. (With Discussion.) VII, 626 (1907).

"The Testing of Bitumens for Paving Purposes." Allan W. Dow. (With Discussion.) III, 349 (1903).

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"The Closing of Blowholes in Steel Ingots." Henry M. Howe. (With Discussion.) IX, 327 (1909).

"The Welding of Blowholes in Steel." Henry M. Howe. X, 169 (1910).

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"Some Recent Developments in Testing Boiler Tubes." Frank N. Speller. XI, 500 (1911).

Standard Specifications for:

Lap-welded and Seamless Steel Boiler Tubes and Safe Ends, 2} in. Diameter and Under. XII, 258 (1912).

Lap-welded Iron Boiler Tubes. XII, 264 (1912).

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"Firebox Steel—Failures and Specifications." Max H. Wickhorst. VI, 275 (1906).

"Influence of the Various Constituents of Coal on the Efficiency and Capacity of Boiler Furnaces. D. T. Randall and Perry Barker. (With Discussion.) IX, 626 (1909).

Reports of the Committee on Uniform Specifications for Boilers:

Recommending co-operation with the American Boiler Manufacturers' Association and the Association of American Steel Manufacturers in securing revision of the laws on boiler inspection. V, 154 (1905).

Suggesting a concurrence in the compromise between the Association of American Steel Manufacturers and the American Boiler Manufacturers' Association, and discussing the movement for a revision of the laws concerning boiler inspection. VI, 136 (1906).

Reviewing the work of the American Boiler Manufacturers' Association and the Massachusetts Board of Boiler Rules, and recommending a revision of the Standard Specifications for Openhearth Boiler Plate and Rivet Steel, with a dissenting minority report. (With Discussion.) VIII, 214 (1908).

Specifications for Boiler Plate, Rivet Steel, Steel Castings and Steel Forgings, Recommended by a Committee of the American Society of Mechanical Engineers in June, 1903. (With Discussion.) III, 82 (1903).

Standard Specifications for:

Boiler and Firebox Steel. (Superseding Standard Specifications for Open-hearth Boiler Plate and Rivet Steel.) XII, 152 (1912).

Boiler Rivet Steel. (Superseding Standard Specifications for Openhearth Boiler Plate and Rivet Steel.) XII, 157 (1912).

Open-hearth Boiler Plate and Rivet Steel.

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Treatment of water for boilers. Max H. Wickhorst. VI, 291 (1906).

BOND TESTS.

"Some Tests of Bond of Steel Bars Embedded in Concrete by Three Methods." H. C. Berry. IX, 495 (1909).

"Tests of Bond Between Steel and Concrete." T. L. Condron. (With Discussion.) VII, 445 (1907).

"Tests of Bond in Reinforced Concrete Beams." Morton O. Withey. VIII, 469 (1908).

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"A Study of the Rattler Test for Paving Brick." M. W. Blair and Edward Orton, Jr. XI, 776 (1911).

"Notes on Brick Pier Tests." James E. Howard. VII, 475 (1907).

Reports of the Committee on Standard Specifications for Paving and Building Brick:

Recommending for adoption specifications for building brick. (With Discussion.) IX, 131 (1909).

Submitting program for tests of paving brick. (With Discussion.) X, 96 (1910).

Announcing the formation of sub-committees on paving and building brick. XI, 152 (1911).

Revised Specifications for the Rattler Test upon Paving Brick. Recommended by M. W. Blair and Edward Orton, Jr. XI, 809 (1911).

"Some Further Experiments upon the Absorption, Porosity and Specific Gravity of Building Brick." D. E. Douty and Laurence L. Beebe. (With Discussion.) XI, 767 (1911).

Standard Specifications for Building Brick. Proposed. (With Discussion.) IX, 131 (1909).

"The Influence of the Absorptive Capacity of Brick upon the Adhesion of Mortar." D. E. Douty and Harry C. Gibson. (With Discussion.) VIII, 518 (1908).

"The Rattler Test for Paving Brick as a Safe Method of Disclosing the Limit of Permissible Absorption." Edward Orton, Jr. V, 287 (1905).

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"Alternate Stresses in Bridge Members." Gustav Lindenthal. III. 169 (1903).

Is It Desirable to Specify a Single Grade of Open-hearth Structural Steel for Bridges of Ordinary Spans? Topical Discussion. II, 50 (1902). General Discussion, 69.

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Yellow-pine Bridge and Trestle Timbers. (Superseding Standard Specifications for Bridge and Trestle Timber.)

Proposed. IX, 283 (1909). Adopted. X, 159 (1910).

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"Manganese Bronze." C. R. Spare. (With Discussion.) VIII, 391 (1908).

Standard Specifications for Manganese-bronze Ingots. XI, 150 (1911).

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"The National Bureau of Standards," S. W. Stratton. (With Discussion.) VII. 324 (1907).

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"What is the Best Method of Painting Steel Cars?" Frank P. Cheesman. (With Discussion.) V, 436 (1905).

CAST IRON, MANUFACTURE.

- "Effect of Variations in the Constituents of Cast Iron." W. G. Scott. (With Discussion.) II, 181 (1902).
- "Hard Cast Iron: A Theory of One of Its Causes." Henry Souther. V, 218 (1905).
- "Machine-Cast Sandless Pig Iron in Relation to the Standardizing of Pig Iron for Foundry Purposes." Edgar S. Cook. (With Discussion.) III, 186 (1903).
- "Method of Obtaining a Truly Circular and Uniform Chill in Rolls." Thomas D. West. VIII, 386 (1908).
- "Strength of White Iron Castings as Influenced by Heat Treatment." Alexander E. Outerbridge, Jr. (With Discussion.) II, 229 (1902).
- "The Beneficial Effects of Adding High Grade Ferro-Silicon to Cast Iron." Alexander E. Outerbridge, Jr. VI, 259 (1906).
- "The Permanent Mold and its Effect on Cast Iron." Edgar A. Custer. (With Discussion.) IX, 442 (1909).

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"The Physical Properties of Malleable Castings, as Influenced by the Process of Manufacture." Richard Moldenke. III, 204 (1903).

"Unevenly Chilled and Untrue Car Wheels." Thomas D. West. X, 307 (1910).

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"Cast Iron. A Consideration of the Reactions Which Make It Valuable." Herbert E. Field. III, 207 (1903).

"Cast Iron for Dynamo and Motor Frames." H. E. Diller. III, 227 (1903).

"Cast Iron: Strength, Composition, Specifications." William J. Keep. (With Discussion.) IV, 335 (1904).

"Iron Castings: Some Causes of Failure in Service." Robert Job. (With Discussion.) VII, 296 (1907).

"On the Constitution of Cast Iron." William Campbell. (With Discussion.) III, 175 (1903).

"On the Constitution of Cast Iron." Henry M. Howe. (With Discussion.) II, 246 (1902).

"Pig-Iron Feasts and Famines: Their Causes and How to Regulate Them." George H. Hull. IV, 376 (1904).

Reports of the Committee on Cast Iron and Finished Castings:

Announcing sub-committees and program of work. (With Discussion.) III, 40 (1903).

Recommending for adoption specifications for foundry pig iron; cast-iron pipe and special castings; locomotive cylinders; cast-iron car wheels; malleable castings; and gray iron castings. IV, 42 (1904). Discussion, 45, 67, 71, 80, 101.

Re-submitting specifications for cast-iron car wheels, and for gray iron castings. V, 63 (1905).

Requesting authority to cooperate with the committees on specifications for cast-iron pipe of the American Water Works Association. VI, 46 (1906).

Recommending for adoption specifications for foundry pig iron, and asking authority to cooperate with the American Foundrymen's Association. VIII, 143 (1908).

Recommending for adoption specifications for foundry pig iron. IX, 110 (1909).

Report of the action concerning international specifications for cast iron taken at the Copenhagen Congress X, 70 (1910).

Presenting specifications for locomotive cylinders. XI, 82 (1911).

"Strength of White Iron Castings as Influenced by Heat Treatment."
Alexander E. Outerbridge, Jr. (With Discussion.) II, 229 (1902).

"The Classification of Iron and Steel." Albert Sauveur. IV, 239 (1904).

"The Demand for a Specified Grade of Pig Iron." W. G. Scott. III, 223 (1903).

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"Cast Iron: Strength, Composition, Specifications." William J. Keep. (With Discussion.) IV, 335 (1904).

"Chemical Specifications for Pig Iron." B. F. Fackenthal, Jr. IV. 50 (1904).

"Notes on Current Specifications for Cast-iron Pipe." Walter Wood. II, 243 (1902).

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"Pig Iron Grading by Analysis." Hambden Buel. V, 213 (1905).

"Specifications for Cast Iron and Finished Castings." Richard Moldenke. IV, 54 (1904).

Standard Specifications for:

Cast-iron Car Wheels.

Proposed. (With Discussion.) IV, 74 (1904). Adopted in amended form. V, 65 (1905).

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Proposed. (With Discussion.) IV, 69 (1904). Adopted in amended form. IV, 69 (1904). Proposed revision. XI, 83 (1911).

Malleable Castings.

Proposed, IV, 95 (1904).

Adopted in amended form. IV, 96 (1904).

"The Manufacturers' Standard Specifications, as Revised February 6, 1903, and their Comparison with other Recent Prominent Specifications." Albert Ladd Colby. III, 95 (1903).

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- "A Comparison of Standard Methods of Testing Cast Iron." Richard Moldenke. (With Discussion.) V, 191 (1905).
- "A New Type of Autographic Transverse Testing Machine for Research Testing or Regular Foundry Practice." Thorsten Y. Olsen. XI, 819 (1911).
- "A Quick and Automatic Taper-Scale Test, Proposed as a Standard Form of Contraction Test for any Cast Substance and of Chill Test for Cast Iron." Asa W. Whitney. II, 217 (1902).
- "Cast Iron: Strength, Composition, Specifications." William J. Keep. (With Discussion.) IV, 335 (1904).
- "Some Recent Tests of Cast Iron." Alexander E. Outerbridge, Jr. X, 295 (1910).
- Standard Methods for Transverse Tests of Metals. XI, 259 (1911).
- "Tests of Cast-iron Arbitration Test Bars." C. D. Mathews. (With Discussion.) X, 299 (1910).
- "The Importance of Adopting Standard Sizes of Test-bars for Determining the Strength of Cast Iron." Alexander E. Outerbridge, Jr. (With Discussion.) III, 216 (1903).
- "The Need of Foundry Experience for the Proper Inspection and Testing of Cast Iron." Thomas D. West. (With Discussion.) II, 210 (1902).
- "The Present Status of Testing Cast Iron." Richard Moldenke. II, 207 (1902).

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"Iron Castings: Some Causes of Failure in Service. Robert Job. (With Discussion.) VII, 296 (1907).

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Specifications for Iron and Steel Structures Adopted by the American Railway Engineering and Maintenance of Way Association in March, 1903, with introduction by J. P. Snow. III, 59 (1903).

Standard Specifications for:

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I, $125 (\bar{1}900)$.

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Structural Steel for Bridges.

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First revision. V, 48 (1905). Second revision. IX, 37 (1909).

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Proposed. I, 81 (1900).

Adopted in amended form. I, 250 (1901).

First revision. IX, 42 (1909).

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"A Novel Moist Closet." Ernest B. McCready. VII, 598 (1907).

"Aluminates: Their Properties and Possibilities in Cement Manufac-ture." Henry S. Spackman. (With Discussion.) X, 315 (1910).

"Cement and Concrete Work of United States Reclamation Service, with Notes on Disintegration of Concrete by Action of Alkali Water.' J. Y. Jewett. VIII, 480 (1908).

"Destruction of Cement Mortars and Concrete through Expansion and Contraction." Alfred H. White. (With Discussion.) XI, 531 (1911).

"Disintegration of Fresh Cement Floor Surfaces by the Action of Smoke Gases at Low Temperatures." Alfred H. White. IX, 530 (1909).

"Hydrated Lime and Cement Mortars." E. W. Lazell. VIII, 418

"Low-pulling Early-Stage Portland Cement vs. the Ordinary Early-Strength Developing Product." W. A. Aiken. (With Discussion.) V, 318 (1905).

"Some Possible By-Products in the Portland Cement Industry." Clifford Richardson. (With Discussion.) IV, 465 (1904).

"Some Statistics of the Cement Industry in America." Robert W. Lesley. IV, 448 (1904).

"Standards for Portland Cement, Especially for the Tensile Strength." William W. Maclay. VIII, 423 (1908).

"The Chemical Analysis of Portland Cement: Its Possibilities and its Limitations." Richard K. Meade. (With Discussion.) II, 139 (1902).

"The Collective Portland Cement Exhibit and Model Testing Laboratory of the Association of American Portland Cement Manufacturers, and the Results of Tests at the Louisiana Purchase Exposition, St. Louis, Mo." Richard L. Humphrey. V, 388 (1905). CEMENT. 29

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- "The Effect of High-Pressure Steam on the Crushing Strength of Portland-cement Mortar and Concrete." Rudolph J. Wig. XI, 580 (1911).
- "The Effect of Oil on Cement Mortar." Rolla C. Carpenter. Discussion.) VII, 398 (1907).
- "The Influence of Fine Grinding on the Physical Properties of Portland Cement." Richard K. Meade. VIII, 408 (1908).
- "The Painting of Cement and Concrete Structures." Charles Macnichol. (With Discussion.) X, 396 (1910).

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- British Standard Specifications for Portland Cement, with introduction by Robert W. Lesley. V, 363 (1905).
 "Practical Cement Control." Charles F. McKenna. (With Discussion.)
- IV, 455 (1904).
- Reports of the Committee on Standard Specifications for Cement:
 - Brief progress report. III, 45 (1903).
 - Presenting specifications for cement and Abstract of Methods Recommended by the Special Committee on Uniform Tests of Cement of the American Society of Civil Engineers. (With Discussion.) IV, 105 (1904).
 - Announcing the adoption of the standard specifications for cement and outlining the history of the work of the committee. V, 75
 - Brief progress report. (With Discussion.) VII, 131 (1907).
 - Recommending revision of the Standard Specifications for Cement. VIII, 146 (1908).
 - Recommending amendments to the Standard Specifications for Cement. IX, 114 (1909).
 - Presenting final report of the Special Committee of The American Society of Civil Engineers on Uniform Tests for Cement. XII, 62 (1912).
- "Standard Cement Specifications." Robert W. Lesley. II, 121 (1902). Discussion, 133.
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 - (With Discussion.) IV, 107 (1904). First revision. VIII, 149 (1908).

 - Second revision. IX, 116 (1909).
- "Standards for Portland Cement, Especially for the Tensile Strength." William W. Maclay. VIII, 423 (1908).
- "The Advantages of Uniformity in Specifications for Cement and Methods of Testing." George S. Webster. (With Discussion.) II, 128 (1902).

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- "A Novel Moist Closet." Ernest B. McCready. VII, 598 (1907).
- "A Suggestion as to a Commercial U.e to be Made of Cement Testing." Richard K. Meade. (With Discussion.) IX, 464 (1909).
- Abstract of Methods Recommended by the Special Committee on Uniform Tests for Cement of the American Society of Civil Engineers. IV, 111 (1904); VIII, 155 (1908); IX, 121 (1909); XII, 306 (1912).
- "Cement Testing in Municipal Laboratories." Richard L. Humphrey. II, 150 (1902).

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- "Comparative Test of Lime Mortar, Both in Tension and Compression: Hydrated Lime and Sand; Lump Lime and Sand; Cement-lime and Sand." E. W. Lazell. X, 328 (1910).
- Final report of the Special Committee of the American Society of Civil Engineers on Uniform Tests of Cement. XII, 64 (1912).
- Investigations to be conducted by United States Geological Survey during the year ending June 30, 1906. J. A. Holmes and Richard L. Humphrey. V, 228 (1905).
- "Labor Saving Devices in a Cement Laboratory." R. E. Bakenhus. VII, 379 (1907).
- "Mechanical Defects in Sieves Used for Testing Cement." E. W. Lazell. (With Discussion.) IV, 543 (1904).
- "Methods of Testing Cements for Waterproofing Properties." W. Purves Taylor. (With Discussion.) VI, 334 (1906).
- "Normal Consistency Tests of Neat Cement." Russell S. Greenman. (With Discussion.) V, 308 (1905).
- "Notes on Compression Tests of Cement." W. Purves Taylor. (With Discussion.) VI, 387 (1906).
- "Practical Cement Control." Charles F. McKenna. (With Discussion.) IV, 455 (1904).
- Results of tests at the Louisiana Purchase Exposition, St. Louis, Mo. Richard L. Humphrey. V, 388 (1905).
- "Some Attempts to Limit the 'Personal Equation' in Cement Testing." W. A. Aiken. (With Discussion.) IV, 557 (1904).
- "Some Avoidable Causes of Variation in Cement Testing." Ernest B. McCready. VII, 349 (1907). Discussion, 360.
- "Some Notes on the Boiling Test for Cement." Frederick H. Lewis. (With Discussion.) IV, 468 (1904).
- "Some Observations on the Effect of Water and Combinations of Sand upon the Setting Properties and Tensile Strength of Portland and Natural Cements." E. S. Larned. (With Discussion.) III, 401 (1903).
- "Some Problems of a Cement Inspecting Laboratory." (With Discussion.) Russell S. Greenman. VII, 355 (1907).
- "Soundness Tests of Portland Cement." W. Purves Taylor. (With Discussion.) III, 374 (1903).
- Tests by the United States Structural Materials Testing Laboratories. Richard L. Humphrey. VI, 342 (1906).
- "Tests of Portland Cement Mortar Exposed to Cold." Charles S. Gowen. (With Discussion.) III, 393 (1903).
- "The Advantages of Uniformity in Specifications for Cement and Methods of Testing." George S. Webster. (With Discussion.) II, 128 (1902).
- "The Chemical Analysis of Portland Cement: Its Possibilities and Its Limitations." Richard K. Meade. (With Discussion.) II, 139 (1902).
- "The Classification of Fine Particles According to Size." Gustave W. Thompson. (With Discussion.) X, 601 (1910).
- "The Control of Physical Test Results in Portland Cement." (With Discussion.) W. A. Aiken. VII, 371 (1907).
- "The Determination of the Specific Gravity of Cements." Richard K. Meade. VI, 398 (1906).

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"The Specific Gravity of Portland Cement." Richard K. Meade and Lester C. Hawk. (With Discussion.) VII, 363 (1907).

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"Flue-sheet Cinder Formation in Locomotives." Robert Job. (With Discussion.) XI, 472 (1911).

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"The Classification of Fine Particles According to Size." Gustave W. Thompson. (With Discussion.) X, 601 (1910).

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Analyses and calorific values of coals delivered to the United States Government buildings. Harry D. Tiemann. VII, 565 (1907).

"Commercial Results in the Purchase of Coal on Specifications." Julian E. Woodwell. VIII, 582 (1908).

"Influence of the Various Constituents of Coal on the Efficiency and Capacity of Boiler Furnaces." D. T. Randall and Perry Barker. (With Discussion.) IX, 626 (1909).

"Methods of Testing Coal." S. S. Voorhees. VII, 560 (1907). Discussion, 572.

Reports of the Committee on Standard Specifications for Coal:

Announcing sub-committees and discussing the requirements of the coal industry in connection with specifications. IX, 277 (1909).

Progress report, with appendix on fuel investigations of the Bureau of Mines. XI, 250 (1911).

Specification and Proposal for Supplying Coal. Julian E. Woodwell. VII, 554 (1907).

"The Purchase of Coal under Specification." Julian E. Woodwell. VII, 543 (1907). Discussion, 572.

"The Recent Testing of Coals Used by the Federal Government in its Public Buildings in Washington." Joseph A. Holmes and D. T. Randall. VII, 537 (1907). Discussion, 572.

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Reports of the Committee on Standard Specifications for Coke:

Progress report announcing investigations to be undertaken. (With Discussion.) VI, 99 (1906).

Progress report, embodying a report of the Sub-Committee on Sampling and Analysis. VII, 147 (1907).

Announcing appointment of sub-committee to investigate methods of sampling coke. XII, 78 (1912).

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COLUMNS, CONCRETE.

- "Concrete Column Tests at the Watertown Arsenal." James E. Howard. (With Discussion.) VI, 346 (1906).
- "Notes on Some Additional Tests of Concrete Columns." James E. Howard. VII, 394 (1907).
- "Tests of Concrete Columns." Arthur N. Talbot. VII, 382 (1907).
- "Tests of Plain and Reinforced Concrete Columns." Morton O. Withey. (With Discussion.) IX, 469 (1909).
- "Tests of Reinforced Concrete Columns Subjected to Repeated and Eccentric Loads." Morton O. Withey. X, 361 (1910).

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- "Notes on Tests of Steel Columns in Progress at Watertown Arsenal."

 James E. Howard. (With Discussion.) IX, 413 (1909).
- Preliminary Program of Tests of Steel Columns to be Executed at United States Watertown Arsenal. (With Discussion.) VIII, 282 (1908).
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Report of Committee D-8 on Waterproofing Materials.

The Welding of Blowholes in Steel—Henry M. Howe.

Further Notes on the Annealing of Steel-William Campbell.

The Influence of Titanium on Segregation in Bessemer-Rail Steel—G. B. Waterhouse.

Low-Carbon Streaks in Open-Hearth Rails-M. H. Wickhorst.

Elongation and Ductility Tests of Rail Sections under the Manufacturecs' Standard Drop-Testing Machine—P. H. Dudley.

Tests of Steel and Wrought-Iron Beams-H. F. Moore.

Strength of Steel from I-Beams-E. L. Hancock.

Test of a Structural-Steel Plate Partly Fused by a Short-Circuited Electric Current—A. W. Carpenter.

Cupro-Nickel Steel-G. H. Clamer.

Copper-Clad Steel: Its Metallurgy, Properties and Uses-Wirt Tassin.

Some Recent Tests of Cast Iron—Alexander E. Outerbridge, Jr.

Tests of Cast-Iron Arbitration Test Bars—C. D. Mathews.

Unevenly Chilled and Untrue Car Wheels—Thomas D. West.

Aluminates: Their Properties and Possibilities in Cement Manufacture— Henry S. Spackman.

Comparative Tests of Lime Mortar, both in Tension and Compression Hydrated Lime and Sand; Lump Lime and Sand; Cement-Lime and Sand—E. W. Lazell.

A Sand Specification and Its Specific Application—W. A. Aiken.

The Effect of Sodium Silicate Mixed with or Applied to Concrete—Albert Moyer.

Tests of Reinforced Concrete Columns Subjected to Repeated and Eccentric Loads—M. O. Withey.

An Investigation of the Distribution of Stress in Reinforced Concrete Beams, including a Comparative Study of Plain Concrete in Tension and Compression—A. T. Goldbeck.

The Painting of Cement and Concrete Structures—Charles Macnichol.

Some Exposure Tests of Structural-Steel Coatings—Ç. M. Chapman.

Vermilion Paint for Railway Signals: Results of an Investigation—Robert Job.

Another Solubility Test on Protective Coatings-G. W. Thompson.

The Determination of Soluble Bitumen—Prévost Hubbard and C. S. Reeve.

Improved Instruments for the Physical Testing of Bituminous Materials— Herbert Abraham.

Necessary Reforms in Specifications for Petroleum Products—Albert Sommer.

Fuel Investigations, United States Geological Survey: Progress During the Year Ending June 30, 1910—J. A. Holmes.

The Forest Products Laboratory: Its Purpose and Work—McGarvey Cline. The Scleroscope—Albert F. Shore.

Apparatus for the Microscopical Examination of Metals—Albert Sauveur.

The 600,000-lb. Hydraulic Testing Machine of the University of Wisconsin and Its Calibration—H. F. Moore and M. O. Withey.

Some Testing-Laboratory Accessories-J. M. Porter.

Apparatus for Repeated Loads on Concrete Cylinders and a Typical Result —H. C. Berry.

An Autographic Rubber-Testing Machine-Thorsten Y. Olsen.

A New Machine for Testing Pitch-Thorsten Y. Olsen.

The Classification of Fine Particles According to Size-G. W. Thompson.

A Comparison of Magnetic Permeameters—Charles W. Burrows.

The Exponential Law of Endurance Tests-O. H. Basquin.

The Structural Materials Testing Laboratories, United States Geological Survey: Progress During the Year Ending June 30, 1910—Richard L. Humphrey.

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Summary of the Proceedings of the Fourteenth Annual Meeting.

The American Society for Testing Materials—Annual Address by the President, Henry M. Howe.

Report of Committee A-I on Standard Specifications for Steel.

Progress Report by the American Members of International Sub-Committee Ia on the Introduction of International Specifications for Steel.

Supplemental Report by the American Members of International Sub-Committee Ia on International Steel Specifications and on the Work of that Sub-Committee.

Proposed Standard Specifications for Forged and Rolled, Forged, or Rolled Solid Steel Wheels for Engine Truck, Tender and Passenger, Subway and Elevated Railway Service.

Proposed Standard Specifications for Forged and Rolled, Forged, or Rolled Solid Steel Wheels for Freight Car Service.

Standard Specifications for Heat-Treated Carbon-Steel Axles, Shafts, and Similar Parts.

Standard Specifications for Steel Reinforcement Bars.

Report of Committee A-3 on Standard Specifications for Cast Iron and Finished Castings.

Proposed Revised Standard Specifications for Locomotive Cylinders.

Report of Committee A-4 on Heat Treatment of Iron and Steel.

Practice Recommended for Annealing Miscellaneous Rolled and Forged Carbon-Steel Objects.

Report of Committee A-5 on the Corrosion of Iron and Steel.

Analysis of Results of Official Inspection of Fence-Wire Tests, Carnegie Technical Schools, Pittsburgh, Pa., November 30, 1910.

Report of Committee A-6 on the Magnetic Testing of Iron and Steel.

Standard Magnetic Tests of Iron and Steel.

Report of Committee A-7 on the Tempering and Testing of Steel Springs and Standard Specifications for Spring Steel.

Report of Sub-Committee on Tests.

Report of Committee B-1 on Standard Specifications for Hard-Drawn Copper Wire.

Report of Committee B-2 on Non-Ferrous Metals and Alloys.

Standard Specifications for Copper-Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars.

Standard Specifications for Spelter.

Standard Specifications for Manganese-Bronze Ingots.

Report of Committee C-3 on Standard Specifications for Paving and Building Brick.

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Report of Sub-Committee D on the Atlantic City Steel Paint Tests.

Report of Sub-Committee E on Linseed Oil.

Report of Sub-Committee F on the Definition of Terms used in Paint Specifications.

Report of Sub-Committee J on the Testing of White Paints.

Report of Committee D-4 on Standard Tests for Road Materials.

Report of Sub-Committee on Distillation.

Provisional Method for the Determination of Soluble Bitumen.

Provisional Method for the Determination of the Penetration of Bitumen. Provisional Method for the Determination of the Loss on Heating of

Oil and Asphaltic Compounds. Provisional Method of Sizing and Separating the Aggregate in Asphalt

Paving Mixtures.

Report of Committee D-5 on Standard Specifications for Coal.

Report on the Fuel Investigations of the Bureau of Mines.

Report of Committee D-8 on Waterproofing Materials.

Report of Committee E-I on Standard Methods of Testing.

Standard Methods for Transverse Tests of Metals.

Life History of Network and Ferrite Grains in Carbon Steel-H. M. Howe.

The Manufacture of Pure Irons in Open-Hearth Furnaces—A. S. Cushman. The Heat Treatment of an Acid and a Basic Open-Hearth Steel of Similar

Composition—Henry Fay.

A Study of the Heat Treatment of Some Low-Carbon Nickel Steels—Henry Fay and J. M. Bierer.

The Heat Treatment of a Steel containing 3.15 per cent Nickel and 0.27 per cent Carbon—William Campbell and H. B. Allen.

Some Causes of Failures in Metals-Henry Fay.

New Types of Impact Testing Machines for Determining Fragility of Metals— T. Y. Olsen.

A New Type of Autographic Transverse Testing Machine for Research Testing or Regular Foundry Practice—T. Y. Olsen.

A New Method of Testing the Endurance of Case-Hardened Gears and Pinions—J. S. Macgregor and Bradley Stoughton.

Standard Tests for Drain Tile and Sewer Pipe—A. Marston.

The Fritz Engineering Laboratory of Lehigh University-F. P. McKibben.

VOLUME XII.

Note.—The Proceedings for 1912 were limited to committee reports with a view of strengthening the American contribution to the Congress of the International Association which was held in New York during the same year. In addition to these committee reports, Volume XII contains the standard specifications of the Society for that year, which are ordinarily published in the Year-Book; certain specifications selected from various sources; the membership list, and miscellaneous information concerning the Society.

Summary of Proceedings of the Fifteenth Annual Meeting.

Annual Address by the Retiring President, Henry M. Howe.

Report of Committee A-I on Standard Specifications for Steel.

Action on the Report of Committee A-1.

Proposed Standard Specifications for Cold-rolled Steel Axles.

Report of Committee A-2 on Standard Specifications for Wrought Iron.
Action on the Report of Committee A-2.

Report of Committee A-6 on the Magnetic Testing of Iron and Steel.

Report of Committee B-1 on Standard Specifications for Copper Wire.

Action on the Report of Committee B-1.

Report of Committee C-I on Standard Specifications for Cement.

Final Report of Special Committee of the American Society of Civil Engineers, on Uniform Tests of Cement.

Report of Committee C-6 on Standard Tests and Specifications for Drain Tile.

Report of Committee D-4 on Standard Tests for Road Materials.

Minority Report.

Report of Committee D-6 on Standard Specifications for Coke.

Report of Committee E-5 on Regulations Governing the Form but not the Substance of Specifications.

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INDEX.

A combined Subject and Author Index (158 pp.), covering Volumes I to XII of the Proceedings, may be obtained at the following prices:

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Orders for publications should be addressed to: Edgar Marburg, Secretary, American Society for Testing Materials, University of Pennsylvania, Philadelphia, Pa.









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